

## **WARNING**

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# Charles Darwin University

## Final Examination

Family Name						
Given Name/s						
Student Number						
Teaching Period	Semester 2, 2018					

PHA213 – Pharmacology 2	DURATION	
	Reading Time:	10 minutes
	Writing Time:	180 minutes
INSTRUCTIONS TO CANDIDATES		
<p>The examination has 2 (A and B) Sections:</p> <p>Section A contains Forty (40) Multiple Choice Questions. Answer <b>ALL</b> questions in the Faculty/School supplied Multiple Choice Answer Sheet. Total marks allocated: Twenty (20). Suggested time allocation: One (1) hour.</p> <p>Section B contains Ten (10) Extended-Answer Questions. Answer any <b>Eight (8)</b> questions only in the 20-page Booklet provided. Total marks allocated: Eighty (80). Suggested time allocation: Two (2) hours.</p>		
EXAM CONDITIONS		
<p><u>You may begin writing from the commencement of the examination session.</u> The reading time indicated above is provided as a guide only.</p>		
This is a CLOSED BOOK examination		
No calculators are permitted		
No handwritten notes are permitted		
No dictionaries are permitted		
ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED	
No additional printed material is permitted	1 x 20 Page Book 1 x Scrap Paper College Multiple Choice Answer Sheet	

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Sections B  
Extended Answer Questions  
Total No. of Marks for this Section: 80

Answer this section in the 20-page Answer Booklet provided.  
Please ensure that you write your name and student number on the Answer Booklet.

**Answer ANY EIGHT (8) of the TEN (10) questions only.**

Marks for each section are indicated. Suggested time allocation: 120 mins

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**Question 1**

- a. Describe the endogenous metabolic processes of paracetamol and use these to explain why chronic alcoholism makes a consumer more vulnerable to the hepatotoxic effect of paracetamol.

*[Drawing of molecular structures for paracetamol and metabolites is not required and a flow diagram without any explanatory note is **NOT** a valid answer.]*

(6 marks)

- b. Name **TWO** (2) agents which can be used as antidotes for resolving paracetamol overdose/toxicity and briefly describe their mechanisms of action.

(4 marks)

**Question 2 (multiple topics)**

- a. Describe the actions and uses of sumatriptan and pizotifen in the management of migraine headache. What are the precautions when using these therapeutic agents? Name **ONE** (1) for each.

(5 marks)

- b. Explain how the physicochemical properties of inhaled general anaesthetics can determine their speeds of onset of action and their potencies.

(5 marks)

### Question 3

- a. The following are first line agents used in the treatment of epilepsy. Describe their mechanisms of action and identify those that are effective for absence seizures.

- i. Sodium Valproate
- ii. Carbamazepine
- iii. Ethosuximide

(7 marks)

- b. Comment on precautions which should be followed when using sodium valproate during pregnancy. Why are these precautions required?

(3 marks)

### Question 4

AH was admitted to hospital after his son found him minimally responsive, with slow and shallow breathing. AH's wife said that he took some temazepam tablets with alcohol before going to bed to help him fall asleep.

- a. Explain what has probably happened. Include in your answer the mechanism of action of temazepam.

(7 marks)

- b. How could AH be treated?

(3 marks)

### Question 5 (multiple topics)

Describe the mechanism of action of the following antibacterial or cancer chemotherapeutic agents. Identification of their therapeutic applications is not required. For part d, explain the benefit of using this combined preparation.

- a Vincristine (2 marks)
- b Etoposide (2 marks)
- c Clarithromycin (2 marks)
- d Piperacillin with tazobactam (4 marks)

### Question 6

Describe the mechanisms of action of the following agents in lowering the blood sugar level:

- a. Acarbose (2 marks)
- b. Dapagliflozin (2 marks)
- c. Glipizide (3 marks)
- d. Linagliptin (3 marks)

### Question 7 (multiple topics)

Describe the mechanisms of action of the following psychotropic agents. Include in your answer, identify which mental health disorders they are indicated for, how they benefit the consumers, and any precautions applied.

- a. Clozapine (3 marks)
- b. Aripiprazole (3 marks)
- c. Fluvoxamine (2 marks)
- d. Moclobemide (2 marks)

### Question 8 (multiple topics)

- a. Discuss how levodopa and rasagiline act to alleviate signs and symptoms associated with Parkinson's disease.

(5 marks)

- b. Explain the uses, including their mechanisms of action, of the following agents in treating disorders of the thyroid glands:

- i. Radioactive iodide ( $^{131}\text{I}$ )
- ii. Carbimazole

(5 marks)

### Question 9

The doctor prescribed PH morphine to help him manage his pain after a recent surgery for a broken bone.

- a. Describe the mechanisms of action of morphine and explain how it inhibits pain transmission.

(4 marks)

- b. PH developed an addiction to morphine after a prolonged use. Suggest an agent that is currently used to wean off (stopping) morphine addiction and explain how it works.

(3 marks)

- c. PH was presented to the hospital due to an overdose of morphine. List the typical signs and symptoms of morphine overdose, and the IV agent which can be used to reverse this poisoning.

(3 marks)

Question 10 (multiple topics)

- a. What are the active ingredients in the combined oral contraceptive pills (COCP) and how do they act to prevent pregnancy?

(5 marks)

- b. Outline the adverse effects associated with long-term administration of glucocorticoids (e.g. prednisolone). How can these adverse effects be managed or avoided?

(5 marks)

*End of Section B*

*End of Exam Paper*